

# Mineral Industry Surveys

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## MANUFACTURED ABRASIVES IN THE THIRD QUARTER 2001

The U.S. Geological Survey (USGS) collects quarterly data on manufactured abrasives through its survey of producers. Manufactured abrasives included in this report are fused aluminum oxide, silicon carbide, and metallic abrasives. Where indicated, Canadian and United States data are combined to protect proprietary information. Except where noted, the quantities cited in this report are in metric units.

### Fused Aluminum Oxide

During the third quarter, fused aluminum oxide was produced by two companies with one plant operating in the United States and two plants operating in Canada. The total production during the third quarter of 2001 was 10,000 tons of regular-grade crude fused aluminum oxide with an estimated value of \$3 million. This total production figure has been rounded to the nearest 5,000 tons to avoid disclosing proprietary data.

According to the U.S. Census Bureau, U.S. imports of crude fused aluminum oxide for the year through August 2001 were 71,000 metric tons valued at \$22.9 million, or an average of \$322 per ton. About 46% of the imports came from China and 27% from Venezuela. Imports of crude fused aluminum oxide from China have been rising, but some of the imports may not be abrasive quality material.

U.S. imports of refined and ground fused aluminum oxide in the first eight months of 2001 reached 80,500 tons valued at \$36.6 million, or an average of \$454 per ton. The top five sources of the refined and ground imports were China (58%), Canada (18%), Austria (7%), Germany (7%), and Brazil (5%). Low-cost imports of fused aluminum oxide grain from China also have increased in recent years. The imports, however, reportedly include refractory grade material as well as abrasive grain. U.S. exports of fused aluminum oxide through August 2001 were 6,600 tons. The exports were valued at \$19.8 million, or \$3,000 per ton. Germany received 30% of the exports that were shipped; Mexico received 15% and Canada received 15%.

The Department of Defense stores fused aluminum oxide in the national defense stockpile (NDS). All of the NDS aluminum oxide, however, has been authorized by law for disposal. During the third quarter of 2001, the Department of Defense reported sales of 44 tons of fused aluminum oxide abrasive grain valued at \$19,800. At the end of the quarter, NDS reported 16,280 tons of fused aluminum oxide abrasive grain with an estimated value of \$7.33 million remained in the stockpile. The NDS has sold all of the crude fused aluminum oxide in the stockpile (Janet Rollins, Defense National Stockpile Center, oral commun., 2001). No further stockpiling of crude fused aluminum oxide by the Department of Defense is anticipated. If the current disposal rate and NDS sales schedules are continued, all of the stockpiled fused aluminum oxide abrasive grain will be sold by 2003.

### Silicon Carbide

Abrasive-grade silicon carbide is produced by one company in the United States. The total production during the third quarter of 2001 was 5,000 tons of abrasive-grade silicon carbide with an estimated value of \$2.9 million. This total production figure has been rounded to the nearest 5,000 tons to avoid disclosing proprietary data.

Total U.S. imports of crude silicon carbide for the year through August 2001 were 69,900 tons valued at \$26.4 million; imports from China alone were 56,600 tons valued at \$18.8 million. The average price of imported crude silicon carbide, excluding Chinese crude, was \$573 per ton; the average price of Chinese crude was \$332 per ton. U.S. imports of refined and ground silicon carbide for the same period were 18,800 tons valued at \$23.9 million, or an average of \$1,270 per ton. During the period, China accounted for 81% of the crude material and 29% of the refined and ground material.

U.S. exports of crude silicon carbide through August 2001 were reported to be 500 tons with a value of \$2.4 million. Exports of refined and ground silicon carbide were 6,090 tons valued at \$5.4 million. Almost all of the crude material was

shipped to Japan, Mexico, United Kingdom, and Germany and most of the refined material went to Canada, Mexico, and Japan in decreasing order.

The NDS has sold all of the silicon carbide in the stockpile, and no further stockpiling is anticipated.

### **Metallic Abrasives**

Metallic abrasives information was collected from 12 companies operating 14 U.S. plants. During the third quarter of 2001, six companies produced 55,800 tons of steel shot and grit, a decrease relative to the same period in 2000. At least one of the companies produced shot and grit from reclaimed material. Total third quarter production was valued at \$25 million, or an average of \$449 per ton. Total annual estimated output in 2001 is 224,000 tons valued at \$98.9 million; 2000 output was 266,000 tons valued at \$118 million.

Shipments of steel shot and grit in the third quarter were 55,900 tons valued at \$25.1 million, or an average of \$449 per ton. Shipments during the third quarter of 2000 were 67,700 tons valued at \$30.2 million for an average of \$446 per ton.

Estimated third quarter production of other types of metallic shot and grit (primarily cut wire shot) was 264 tons valued at \$862,000. Six companies produced shot.

Imports of all types of metallic shot and grit through August 2001 were 12,000 tons valued at \$7.4 million for an average of \$615 per ton. Canada was the largest supplier, accounting for 47% of the tonnage imported.

Exports of all types of metallic abrasives through August 2001 were 14,900 tons valued at \$9.7 million, or an average of \$653 per ton. Shipments to Canada accounted for 57% of the exports; an additional 26% was shipped to Mexico.

TABLE 1  
MANUFACTURED ABRASIVES 1/

(Metric tons, unless otherwise specified)

Source and product	2000				2001					
	Third quarter		Fourth quarter		First quarter		Second quarter		Third quarter	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
United States and Canada, production: 2/										
Silicon carbide 3/	10,000	\$5,400	10,000	\$6,100	15,000	\$8,690	10,000	\$6,460	5,000	\$2,900
Crude aluminum oxide, regular-grade 4/	25,000	7,500	25,000	8,400	20,000	5,900	20,000	6,200	10,000	3,000
United States, production:										
Steel shot and grit	65,000	28,900	59,600	26,300	57,200	24,800	55,200	24,300	55,800	25,100
Other shot and grit e/ 5/	556	1,850	435	1,480	409	1,400	367	1,230	264	862
Total	65,500	30,700	60,000	27,800	57,600	26,200	55,500	25,600	56,000	25,900
United States, shipments:										
Steel shot and grit	67,700	30,200	58,600	26,100	59,800	26,500	59,900	26,600	55,900	25,100
Other shot and grit e/ 5/	557	1,850	428	1,480	409	1,400	374	1,270	267	884
Total	68,300	32,100	59,000	27,600	60,200	27,900	60,300	27,800	56,100	26,000

e/ Estimated.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Quantities are rounded to the nearest 5,000 tons to avoid disclosing proprietary data; values are estimated.

3/ Includes materials for metallurgical uses and other applications.

4/ Regular-grade normally accounts for 85% of total output, and high-purity material accounts for the remainder.

5/ Includes cut wire shot and reclaimed shot and grit from primary producers.